

**GEORGIA-PACIFIC LLC  
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE  
RESPONSES TO USEPA COMMENTS ON  
BANK MONITORING IN THE FORMER PLAINWELL IMPOUNDMENT  
AND THE PLAINWELL NO. 2 DAM AREA  
DECEMBER 2012, ARCADIS**

**Former Plainwell Impoundment:**

**USEPA Comment 1:**

No significant issues of concern were identified upstream of US 131.

***Response:***

Former Plainwell Impoundment Removal Area 4A, which is located upstream of US 131, was identified as an area of concern by Paul Bucholtz of Michigan Department of Environmental Quality (MDEQ) on October 25, 2012 and communicated via an e-mail from United States Environmental Protection Agency (USEPA) on October 26, 2012.

On November 15, 2012, ARCADIS, on behalf of Georgia-Pacific LLC (Georgia-Pacific), submitted a technical memorandum titled "Former Plainwell Impoundment and Plainwell No. 2 Dam Area Proposed Repair Memo - Revised November 2012" to describe the bank repair to be implemented in Removal Area 4A. Specifically, clean fill will be placed on the existing slope to isolate the exposed residuals. Rock will be placed on the clean fill from the toe-of-slope to the prism-out 2-year storm elevation.

**USEPA Comment No. 2a:**

We observed some areas of continuing erosion in the former Plainwell Impoundment area that are between the US 131 bridge and the pipeline crossing that should be treated with rock. Specifically, RA 6B and 10A need to be addressed. These areas do not have stable banks and continue to erode. Given the constricted stream channel width, it is necessary to provide continuous rock protection along the water line and up the slope to the bankfull elevation (2-Year Storm Water Elevation). In addition, Georgia-Pacific must replace the rock cover at RA 10B since we observed exposed liner in RA 10B during the joint visit on August 30, 2012.

Corrective actions should occur as soon as possible. A stable slope and toe armoring will be necessary. We recommend that willow stakes and other tree or shrub plantings be placed in this reconstructed slope and if necessary, irrigated during July and August and other periods with abnormally dry conditions until the plantings are well established. To help in the planning process, we have attached a preliminary sketch for RA 10A. The sketch indicates that new rock will be placed beginning at a point upstream of the pipeline crossing, where the design rock terminates, to a point downstream of the pipeline crossing. The exact area will need to be confirmed in the field by the State, USEPA, and Georgia Pacific.

**GEORGIA-PACIFIC LLC  
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE  
RESPONSES TO USEPA COMMENTS ON  
BANK MONITORING IN THE FORMER PLAINWELL IMPOUNDMENT  
AND THE PLAINWELL NO. 2 DAM AREA  
DECEMBER 2012, ARCADIS**

***Response:***

On November 15, 2012, ARCADIS, on behalf of Georgia-Pacific, submitted a technical memorandum titled "Former Plainwell Impoundment and Plainwell No 2 Dam Area Proposed Repair Memo - Revised November 2012" to describe the bank repair to be implemented in Removal Area 6B. Specifically, in December 2012 rock will be placed from the existing toe-of-slope to the prism-out 2-year storm elevation. In spring 2013, live willow stakes will be installed above the prism-out 2-year storm water elevation to support bank stability as woody roots develop and to increase the habitat quality of the floodplain by providing woody habitat.

On December 7, 2012, ARCADIS, on behalf of Georgia-Pacific, submitted a sampling plan for Removal Area 10A. The letter was approved by USEPA on December 8, 2012. As described in a December 7, 2012 letter this material was sampled on December 17 and 18, 2012 to evaluate the presence of polychlorinated biphenyls (PCBs). Under the supervision of USEPA, five cores were advanced on December 17, 2012. The fine-grain material from each location was homogenized and a single composite sample was submitted to KAR Laboratories in Kalamazoo, Michigan for PCB analysis. The sample results will be used to further evaluate whether bank maintenance is warranted in this area. On December 18, 2012, the cores were collected from the same five locations. The fine-grain material from each core was homogenized and one sample from each core was submitted to KAR Laboratories for PCB analysis. PCBs were not detected in any of the six samples submitted for laboratory analysis. Based on these results no bank maintenance activities are warranted in this area.

**USEPA Comment 2b:**

In addition, the State believes that other areas, specifically Removal Areas 7, 8, and 9B, within this reach (US 131 to the pipeline crossing), that have been previously armored with coir log and rock should also be supplemented to ensure rock is present up to the bankfull elevation due to the unstable river channel. These areas, if not addressed under the TCRA must be addressed under the Record of Decision.

***Response:***

Placement of additional rock in these areas is not necessary for purposes of ensuring stable banks. The rationale for this decision is included in Section 6.3.2 of the Former Plainwell Impoundment and Plainwell No. 2 Dam Area 2012 Bank Conditions Monitoring Report. To address Trustee concerns, live willow stakes will be planted in the buffer zone and landward of the existing rock bank armoring to further increase the density and depth of roots and increase the soil holding capability of the bank. This work will be completed in spring 2013.

**GEORGIA-PACIFIC LLC  
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE  
RESPONSES TO USEPA COMMENTS ON  
BANK MONITORING IN THE FORMER PLAINWELL IMPOUNDMENT  
AND THE PLAINWELL NO. 2 DAM AREA  
DECEMBER 2012, ARCADIS**

**USEPA Comment 3:**

The areas on the north side of the river (opposite RA 78 and RA 88) that were not subject to removal action or treated with rock appear to be in good condition. No further action is needed in these areas.

***Response:***

We agree with this assessment.

**USEPA Comment 4:**

We observed a substantial amount of the mid channel "prism" of former impoundment sediments just above the dam that has now become vegetated. Georgia Pacific should estimate the volume of this material, evaluate the shear stress on the banks and determine if removal or induced movement of this material will substantially increase the cross-sectional area of the channel. Additionally, Georgia Pacific should evaluate whether the rock treatment is sufficient given the estimated bank shear stress. Alternatively, Georgia Pacific could relocate the material this fall without further evaluation to the quiescent area below the spillway or dislodge the in-stream material and permit it to transport naturally with appropriate water quality monitoring.

***Response:***

On October 3, 2012 ARCADIS, on behalf of Georgia-Pacific, submitted a letter titled "Review of Hydraulic Modeling Near the Former Plainwell Dam in Plainwell, Michigan to Evaluate Effects of Remaining Stored Sediment on Bank Stresses" to evaluate the effects of the mid-channel prism. This letter concluded that the existing rock is sufficient given the estimated bank shear stress. This is described in Section 6.3.2.2.4 of the Former Plainwell Impoundment and Plainwell No. 2 Dam Area 2012 Bank Conditions Monitoring Report.

**USEPA Comment 5:**

The rock slope on the left bank (facing downstream) at the former dam powerhouse is slumping and should be corrected. This appears to have been caused by the 2008 storm event when a high volume of water was constricted over the temporary water control structure. A minor amount of rock relocation is required this fall. The rock placed at the top of the slope is not necessary now that water levels have dropped at this location and about 6' of rock can be stripped off the top and reused to cover exposed filter fabric and other necessary corrections. Appropriate vegetation will need to be established where rock is removed.

**GEORGIA-PACIFIC LLC  
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE  
RESPONSES TO USEPA COMMENTS ON  
BANK MONITORING IN THE FORMER PLAINWELL IMPOUNDMENT  
AND THE PLAINWELL NO. 2 DAM AREA  
DECEMBER 2012, ARCADIS**

***Response:***

Rock will be installed in this area in December 2012. The proposed plan has been modified, as described in the November 15, 2012 technical memorandum. Rather than re-locating existing rock, new rock will be brought onsite to cover the exposed liner. Therefore, re-vegetation of exposed banks where rock was removed will not be required.

**USEPA Comment 6:**

The 2012 Spring Bank Monitoring report can be corrected for those areas we observed in August that had been unvegetated in the Spring but have since become vegetated and should be rescored for BEHI ratings (12, J2) and describe those sites that were evaluated in the field and determined not to require corrective measures (T3N, T4S, T11N, and T12N).

***Response:***

The Final Former Plainwell Impoundment and Plainwell No. 2 Dam Area 2012 Bank Conditions Monitoring Report has been revised to describe bank repairs implemented in 2012 and areas that received additional evaluation, but did not require corrective action. This discussion is presented in Section 6.

**Plainwell No. 2 Dam Area**

**USEPA Comment 1:**

The Plainwell No. 2 Dam Area shows erosion where rock treatment terminates along the river banks. In a limited site visit, we observed this on the right descending bank near where the first staging area was located, but it may be present in other areas as well. We recommend installation of 1) soft engineering techniques, such as shrub and willow stake placement with anchored coir logs or anchored large woody debris, and 2) rock, as appropriate, to minimize bank erosion in those areas immediately adjacent to rock treatment that showed undercut banks during the site review. We believe this floodplain area does not need irrigation.

***Response:***

On November 15, 2012, ARCADIS, on behalf of Georgia-Pacific, submitted a technical memorandum titled "Former Plainwell Impoundment and Plainwell No 2 Dam Area Proposed Repair Memo - Revised November 2012" to describe the bank repair to be implemented in Removal Area 3A. Specifically, rock will be placed on the existing slope from the toe-of-slope to the median water elevation. In addition, a coir log will be installed at the interface of the top of the toe protection at the median water elevation. Rock and coir log will extend 150 feet downstream from the existing rock. This work is described in Section

**GEORGIA-PACIFIC LLC  
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE  
RESPONSES TO USEPA COMMENTS ON  
BANK MONITORING IN THE FORMER PLAINWELL IMPOUNDMENT  
AND THE PLAINWELL NO. 2 DAM AREA  
DECEMBER 2012, ARCADIS**

6.2.4 of the Former Plainwell Impoundment and Plainwell No. 2 Dam Area 2012 Bank Conditions Monitoring Report.

**USEPA Comment 2:**

Information regarding treatment of purple loosestrife should be provided to the agencies to ensure performance measures are met regarding invasive species control. The agencies are supportive of using leaf-eating beetles (*Galerucella* sp.) but this approach may not be effective for small infestations, i.e. containing less than 100 plants (<http://www.ncera125.ent.msu.edu/GuideGalerucella.htm>).

***Response:***

The effectiveness of the beetle release will be qualitatively evaluated during 2013 vegetation monitoring efforts. Factors affecting the efficacy of the control include the number of release locations, the specific release locations, and seasonal weather conditions. Georgia-Pacific will work closely with experienced staff from the Outdoor Discovery Center to identify the locations and number of releases in the field to optimize weed control results. The invasive species control work is described in Section 6.4 of the Former Plainwell Impoundment and Plainwell No. 2 Dam Area 2012 Bank Conditions Monitoring Report.